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DIVISION OF MYCOLOGY AND DISEASE SURVEY

Vol. XVI May 15, 1932 Number 7

DISEASES CAUSED BY NEMATODES

PATHOAPHELENCHUS FRAGARIAE (RITZEMA BOS) ATTACKING BULBOUS IRIS

G. Steiner and Edna M. Bührer

In the fall of 1931 some bulbous irises were received from England at the Federal Inspection House, Washington, D. C. The bulbs were found to be infested with Tylenchus dipsaci. Mr. Peter Bisset decided to give part of the bulbs the hotwater treatment, leaving part untreated as a control. Both groups of bulbs were then planted in the greenhouse for further observation. Neither group put up leaves or stems, perhaps partly because of the high temperature of the greenhouse. Toward the middle of April, 1932, the bulbs were taken up and called to our attention by Mr. D. P. Limber. The untreated bulbs had completely disappeared, presumably because of the ravages of Tylenchus dipsaci. The other bulbs, treated for three hours at 110° F. and planted in sterilized soil, had survived. No Tylenchus dipsaci were found on them. In this regard the hotwater treatment had been successful, however, a rather heavy infestation by a species of Pathoaphelenchus was found. The species involved is considered to be P. fragariae (Aphelenchus fragariae). That P. fragariae should survive a hotwater treatment of 110° F. for three hours, especially within the host tissue, agrees very well with our previous experience.

In this connection it may be remarked that P. fragariae, P. olesistus, and P. ritzemabosi are considered by the writers to be merely host varieties or biological races of a single species, since P. olesistus from ferns and P. ritzemabosi from chrysanthemum have been successfully transferred to strawberry plants. Perhaps P. subtenuis and even P. ribes should be included here too, whereas P. ormerodis is merely a synonym of P. parietinus.

As in the case of Tylenchus dipsaci, P. fragariae attacks the iris bulb from the surface, producing speckled discoloration. A detailed account of the various problems mentioned here will be given elsewhere.

MISCELLANEOUS NOTES ON NEMIC DISEASES

Narcissus bulbs with heavy infestations of Tylenchus dipsaci have recently been received from Baltimore, Maryland, and the following localities in Virginia: Portsmouth, Norfolk, Suffolk, North, Nuttall, Hampton, Richmond, Williamsburg, and Emporia.

Tylenchus dipsaci was observed on phlox, for the first time in the Pacific Northwest. Material was received through State Inspector Wieman, Salem, Oregon. Hydrangea opuloides growing next to the phlox also exhibited slight infestation. This disease has been reported on hydrangea, only once previously from France.

Tylenchus pratensis is reported on Irish potatoes from Argentina, intercepted in Seattle, Washington. (Material received through N. R. Hunt, Plant Quarantine and Control Administration.)

Pathoaphelenchus parietinus was observed on Hippeastrum johnsoni (=Amaryllis johnsoni), from New Orleans, Louisiana. The bulbs harbored a fair number of specimens belonging exclusively to this species.

(G. Steiner and Edna M. Bührer.)

DISEASES OF SPECIAL CROPS

FURTHER REPORTS ON TOBACCO DOWNY MILDEW

Reports received indicate that downy mildew (Peronospora hyoscyami) has caused serious damage in seed beds in the Carolinas and Georgia and that the disease has contributed to the shortage of plants reported for these States.

North Carolina: The disease is rather evenly distributed east from Raleigh at this time. Practically 35 per cent infection of seed beds is the best estimate I can make from a two weeks' trip through the eastern part of the State. Some of the beds are very severely damaged. Many seed beds are attacked that have only four or five leaves on a plant. According to my observations, older plants seem to recover, but younger ones are killed in most cases. This afternoon I observed the disease to be very severe in beds on a dry hillside where the plants were very thinly scattered, not even touching. I was rather surprised since in most cases of severe injury the plants are crowded in the beds.

We are apparently getting good control with 2-3-50 Bordeaux, when the new growth is kept covered at all times, as recommended.
(E. Y. Floyd, April 20.)

Tobacco downy mildew is scattered throughout Columbus and Robeson Counties. Many beds have been completely ruined and growers have given them up. Most growers are spraying now with 2-2-50 Bordeaux, whether their beds are affected or not.
(G. A. Meckstroth, April 13.)

Reports received during the first week of May indicate that the situation is improving and apparently the damage may not be as serious as has been feared.

DISEASES OF CEREALS

RUSTS AND SMUTS ON CEREALS IN GEORGIA

Puccinia triticina on wheat and Puccinia coronata on oats are just showing up most effectively in Clarke County and the counties just to the south. The lower half of the plants are heavily infected. These rusts are entirely confined to the leaves. The wheat rust is in a more advanced stage - many leaves are completely killed and the telial stage is appearing. Very little P. dispersa has been found on rye.

In a trip through Clarke, Oconee, Morgan, Greene, and Putnam Counties little smut was found on oats or wheat. Ustilago avenae is in about 3 to 5 per cent of the heads of oats at the Agronomy Plats at Athens. U. tritici affects about the same percentage of wheat heads and U. hordei has infected some varieties of barley up to as high as 15 per cent. (J. H. Miller, April 25.)

FRUIT DISEASES

DEVELOPMENT OF APPLE SCAB
(Venturia inequalis)

Massachusetts: With apple trees developing somewhat later and scab spores definitely earlier than usual, we are emphasizing the importance of the pre-pink spray this spring. At present, a majority of the lower-elavation orchards have already put on this spray, and in such orchards, scab spores have been mature and shooting in traps for the past week. Perithecia are as far developed in the pre-pink bud stage this year as in the early blossom stage in 1931. The radio is being used again this spring to advise growers regarding spore development and the timing of sprays. (O. C. Boyd, May 5, 1932.)

New York: The following report and table compiled by W. D. Mills are quoted from the New York State College of Agriculture Weekly News Letter for April 25.

The following table is a summary of all the McIntosh counts to date:

Table 25. Scab counts on McIntosh apples in New York.

County	Orchard	Date of Collection	Percentage of perithecia with colored ascospores	
			More than 1/2 colored	Less than 1/2 colored
Niagara	Dickinson	April 13	40.	18.7
Orleans	Archibald	April 12	57.	24.
Orleans	10 mile South of lake	April 12	45.	31.
Wayne	Wooster	April 18	29.	24.
	Read	April 18	40.7	22.
Tompkins	Reddick	April 5	47.3	29.
	Reddick	April 17	71.5	18.5
	Reddick	April 24	76.	15.5
Dutchess	(?) By Dr. Hamilton	April 15	2.	59.
Columbia	Mt. Merino	April 15	4.	24.
Saratoga	(?)	April 16	29.	39.5
Orange	Knapp	April 20	34.5	32.

The position of the leaves taken for the sample and the severity of scab in the orchard last season appear to be important factors in the percentage of mature perithecia found. All of the more mature samples contain large numbers of perithecia in the leaves.

Slight discharge of ascospores was obtained from all of the samples which were tested. These were: Orleans County - Archibald orchard, and orchard 10 miles south of lake (more abundant from Archibald orchard), very slight from Columbia sample, small numbers from the Saratoga and Orange County samples. These samples were wet in the laboratory 4 to 6 hours and spores centrifuged from water below the leaves.

(W. D. Mills. April 25.)

Maryland: We find that scab discharge is unusually early this year since our apple trees are only in the early delayed dormant stage. Throughout the entire State, it is unusual to have them all in the same stage since they are usually much more advanced on the Eastern Shore.

We have been examining apple leaves from orchards in various parts of the State and are finding that the apple scab fruiting bodies are ripening very rapidly. In leaves collected in Berlin a week ago, and in leaves collected at Smithsburg, the outlines of the scab spores could already be recognized in the ascus. In leaves collected in Hancock, Monday, April 11, ripe ascospores were found.

(R. A. Jehle, April 12.)

RUST ON CEDARS IN NEW YORK

Reports from the New York State College of Agriculture Weekly News Letter for April 18:

Dutchess County: Gelatinous telial horns, one-eight inch in length, of the apple rust, Gymnosporangium juniperi-virginianae, have been observed, and also fruiting cankers of the quince rust, G. germinale.

(J. A. Evans).

Ulster County: The continuous rains of April 8 to 12 brought out the horns of G. juniperi-virginianae. (W. J. Clark).

CROWN GALL OF BLUEBERRY

On April 14, we received from J. L. Kelley several specimens of what appears to be crown gall (Bacterium tumefaciens) on cultivated blueberries of the Cabot variety at East Wareham, Massachusetts. This disease has been reported only once before on blueberries and is particularly interesting because the overgrowths are large and very much resemble the typical crown gall on grapes.

PEACH YELLOWS AND LITTLE PEACH IN MICHIGAN IN 1931

The following table summarizes the results of inspection for yellows and little peach in Michigan in 1931. It is condensed from a mimeographed report issued by the Orchard and Nursery Inspection Service, Bureau of Agricultural Industry, Michigan State Department of Agriculture.

Table 26. Summary of inspections made in Michigan peach orchards by counties, 1931.

Counties	Number Farms	Number Trees	Yellows	Littles	Red Suture	Trees Marked, Reason Not Stated
Allegan	54	27,280	44	178		
Berrien	1,649	685,195	1,943	14,994	2	1,852
Branch	11	660	6	4		
Cass	200	22,187	384	152		142
Kent	128	77,321	288	325	2	134
Leelanau	10	1,071				
Macomb	61	53,916				
Mason	9	5,930	12	56		
Newaygo	39	12,400	25	33		
Oakland	38	15,547	34			
Oceana	132	57,486	58	520	580	
Ottawa	69	20,442	30	146		
Van Buren	197	100,043	111	2,267	850	528
Washtenaw	49	15,884				
Total	2,646	1,095,362	2,935	18,675	1,434	2,658

V E G E T A B L E A N D F I E L D C R O P D I S E A S E S

BLACK LEG OF POTATO IN ARKANSAS

"Black leg (Bacillus carotovorus, B. phytophthorus) destroying seed pieces and young shoots in numerous hills on experimental plots at one of the Branch Experiment Stations at Hope, Arkansas. Approximately 25 per cent of the stand has been destroyed. Seed - certified Bliss Triumph from Nebraska."
(H. R. Rosen, April 18.)

DISEASES OF AUSTRIAN WINTER PEAS IN GEORGIA

Fields in Glynn, Tift and Dougherty Counties in south Georgia are now rather heavily infected with Erysiphe polygoni DC. From 5 to 20 per cent of the leaves are turning or dead, also the lower stems are covered with the mildew. Infection is worse in fields which were in cowpeas last summer.

Fields in central and northern parts of the State do not show the powdery mildew, but many plants were injured severely by the freeze in March and are now showing leafspots caused by Ascochyta pisi. This fungus was found in Peach, Houston, Putnam, Morgan, and Clarke Counties. The loss in leaf surface here is from 10 to 15 per cent. (J. H. Miller, April 14.)

RUST ON HORSE BEAN IN TEXAS

A specimen of rust on the horse bean or "fava" bean, Vicia faba, was received from J. J. Taubenhaus, April 23. J. A. Stevenson determined the fungus as Uromyces fabae (Pers.) de Bary, which has apparently not been reported from Texas previously.

M I S C E L L A N E O U S N O T E S

VIOLET ROOT ROT IN TEXAS

J. J. Taubenhaus

On November 12, 1931, affected specimens of sweet potatoes were received from Mr. E. L. Schostag, sweet potato inspector of the Texas State Department of Agriculture. The specimens were heavily covered with strands of a fungus resembling Rhizoctonia violacea. This was checked by a microscopic examination, and later verified by Mr. John A. Stevenson of the Division of Mycology and Disease Survey, Bureau of Plant Industry. Upon inquiry it was learned that the affected specimens had been in the storage house for at least two months, and had gone through the regular process of "curing". This seemed to explain the failure of our attempt to culture the organism. The affected sweet potatoes came from a field in a river botton in Robertson County, where the disease had caused an estimated loss of about 3 per cent.

Last spring the writer found violet root rot near College Station, on coralberries (Symphoricarpos vulgaris) growing in an area of about an acre of cut-over oaks which had developed numerous sprouts, thus making a thick mat of vegetation. At least 25 per cent of the coralberries were found in different stages of infection. The coralberry is a native shrub and is also commonly used as an ornamental.

Traces of violet root rot were also found on alfalfa and sugar beets at the Balmorhea substation in Reeves County. The disease occurred in an alfalfa field under irrigation where Phymatotrichum root rot was also very prevalent. In numerous instances many of the alfalfa plants were found to be affected by both the violet root rot and Phymatotrichum root rot, and it was difficult to determine in such cases which disease did the greater damage.

Recently Dana and Wolff (Dana, B. F. and Wolff, S. E. The occurrence of violet root rot in Central Texas. Phytopath. 21: 557-558. 1931), reported finding violet root rot on native vegetation in the lowlands in Central Texas. Violet root rot is undoubtedly a common trouble in Texas, but fortunately is confined as yet to the moist river-bottom lands, and is not likely to become a serious trouble in the uplands which are subject to the drying of the prolonged summer months.